

## WHAT IS CLAIMED IS:

1 1. A sealed nickel-metal hydride storage cell,  
2 comprising:  
3 a positive electrode containing nickel as a positive  
4 electrode active material;  
5 a negative electrode containing a hydrogen-absorbing  
6 alloy as a negative electrode active material, the negative  
7 electrode having a theoretical capacity larger than a  
8 theoretical capacity of the positive electrode so as to  
9 provide a charge reserve capacity when the positive electrode  
10 is in a fully charged state and to provide a discharge reserve  
11 capacity when the positive electrode is in a fully discharged  
12 state, a ratio of the charge reserve capacity to the discharge  
13 reserve capacity ranging from 1 : 0 to 1 : 0.5;  
14 a separator interposed between the positive electrode  
15 and the negative electrode; and  
16 an electrolyte immersing therein the positive  
17 electrode and the negative electrode.

1 2. A sealed nickel-metal hydride storage cell according  
2 to Claim 1, wherein the storage cell is overcharged during  
3 initial charge.

1 3. A hybrid electric vehicle comprising a plurality of  
2 sealed nickel-metal hydride storage cells, each of the  
3 storage cells having:  
4 a positive electrode containing nickel as a positive  
5 electrode active material;  
6 a negative electrode containing a hydrogen-absorbing  
7 alloy as a negative electrode active material, the negative

8 electrode having a theoretical capacity larger than a  
9 theoretical capacity of the positive electrode so as to  
10 provide a charge reserve capacity when the positive electrode  
11 is in a fully charged state and to provide a discharge reserve  
12 capacity when the positive electrode is in a fully discharged  
13 state, a ratio of the charge reserve capacity to the discharge  
14 reserve capacity ranging from 1 : 0 to 1 : 0.5;

15 a separator interposed between the positive electrode  
16 and the negative electrode; and

17 an electrolyte immersing therein the positive  
18 electrode and the negative electrode.

1 4. A hybrid electric vehicle according to Claim 3, further  
2 comprising:

3 an internal combustion engine;

4 a generator driven by the engine to generate  
5 electricity for charging the storage cells; and

6 a controller that controls the engine and the generator  
7 to recharge the storage cells.

1 5. A hybrid electric vehicle according to Claim 4, further  
2 comprising a charge state detecting unit that detects states  
3 of charge of the respective storage cells,

4 wherein the controller controls the engine and the  
5 generator in such a manner as to keep an average value of the  
6 states of charge of the storage cells at 55% or higher.

1 6. A hybrid electric vehicle according to Claim 4, further  
2 comprising a voltage sensor to detect terminal voltages of  
3 the respective storage cells,

4 wherein the controller controls the engine and the

5 generator in such a manner as to keep the terminal voltages  
6 of the storage cells at 1.15 V or larger.

1 7. A hybrid electric vehicle according to Claim 3, wherein  
2 the storage cells are overcharged to substantially equal  
3 states during initial charge.

1 8. A hybrid electric vehicle, comprising:  
2 an internal combustion engine;  
3 a battery module having a plurality of nickel-metal  
4 hydride storage cells, each of the storage cells having  
5 positive and negative electrodes containing nickel and  
6 hydrogen-absorbing alloy, respectively, as  
7 electrochemically active materials, a separator disposed  
8 between the positive and negative electrodes and an  
9 electrolyte immersing therein the positive and negative  
10 electrode, the negative electrode having a theoretical  
11 capacity larger than a theoretical capacity of the positive  
12 electrode so as to provide a charge reserve capacity when the  
13 positive electrode is in a fully charged state and to provide  
14 a discharge reserve capacity when the positive electrode is  
15 in a fully discharged state, the discharge reserve capacity  
16 being smaller than charge reserve capacity;  
17 a generator driven by the engine to recharge the storage  
18 cells;  
19 means for detecting states of charge of the respective  
20 storage cells; and  
21 means for controlling the engine and the generator to  
22 keep an average of the states of charge of the storage cells  
23 at a given value or higher.

1 9. A hybrid electric vehicle according to Claim 8, wherein  
2 the given value is 55%.

1 10. A hybrid electric vehicle according to Claim 8, further  
2 comprising means for detecting voltages of the respective  
3 storage cells,

4 wherein the controller controls the engine and the  
5 generator to keep the voltages of the respective storage cells  
6 at a discharge voltage limit or higher.

1 11. A hybrid electric vehicle according to Claim 10,  
2 wherein the discharge voltage limit is 1.15 V.

1 12. A hybrid electric vehicle according to Claim 8, wherein  
2 the storage cells are overcharged during initial charge.

1 13. A hybrid electric vehicle according to Claim 12,  
2 further comprising means for approximately equalizing the  
3 states of charge of the storage cells during initial charge.